



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,974	01/23/2001	Ken Chang	Q00-1101-US1	2313

7590 11/17/2004

David M. Sigmond
Maxtor Corporation
2452 Clover Basin Drive
Longmont, CO 80503

EXAMINER

BLOUIN, MARK S

ART UNIT	PAPER NUMBER
----------	--------------

2653

DATE MAILED: 11/17/2004

20

Please find below and/or attached an Office communication concerning this application or proceeding.

DT

Office Action Summary

Application No.

09/768,974

Applicant(s)

CHANG, KEN

Examiner

Mark Blouin

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-44 and 46-54 is/are rejected.
- 7) ☒ Claim(s) 8, 9 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Detailed Action

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 6, 2004 has been entered.

Specification

2. The disclosure is objected to under 37 CFR 1.71, as being so incomprehensible as to preclude a reasonable search of the prior art by the examiner. For example, the following items are not understood: In Claims 32-34 and 50-52, the term "corners" is not defined in the specification nor is it shown in the drawings.

Applicant is required to submit an amendment which clarifies the disclosure so that the examiner may make a proper comparison of the invention with the prior art.

Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 32-34 and 50-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The term "corner" is not included in the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-7,10-12,41-44, and 46-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al (USPN 6,633,457).

7. Regarding Claim 1,2,10-12,41, and 46, Lin et al shows a disk drive (Figs 2-10) with a head stack assembly including a positioner (20) for moving an E-block (10) and a data transducer (122) of a disk drive relative to a storage disk, the E-block having a longitudinal axis, the positioner comprising a magnet assembly (30), including and upper and lower magnetic array (31a,31b,32a,32b), producing a magnetic field and a coil array (21,22) that couples to the E-block and is positioned near the magnet assembly , the coil array being generally a D-shaped loop including a linear first segment (21) that is positioned substantially perpendicular to the longitudinal axis of the E-block, the first segment being adapted to interact with the magnetic

field to move the E-block relative to the storage disk and is substantially linear, wherein the only portion of the coil array that interacts with the magnetic field of the magnet assembly when the coil array is electrically excited is positioned substantially perpendicular to the longitudinal axis of the E-block (Fig. 4; Col 4, lines 9-44).

8. Regarding Claims 3-7 and 42-44, Lin et al shows all the features described, *supra*, in addition to a control system that directs current to the coil array (Fig. 4), being a generally shaped loop, to move the data transducer relative to the target track and electrically excites the first portion (21 – left side) interacting with the magnetic field to generate a first force (F1A) and the second portion (21 – right side), a center portion connecting both, interacting with the magnetic field to generate a second force (F1B) that are substantially parallel, equal in magnitude, and opposite in direction, wherein the first and second portions, substantially symmetrical relative to the longitudinal axis, are adapted to interact with the magnetic field to move the E-block relative to the storage disk, an upper magnet array and a lower magnet array (31a,31b,32a,32b), wherein the first and second portions are positioned substantially between the upper and lower magnet arrays.

9. Regarding Claims 47 and 48, drawn to a method of retrieving data from a target track on a rotating storage disk of a disk drive using the aforementioned apparatus, the limitations of the method claims are met and are anticipated by Lin et al when the apparatus operates.

10. Regarding Claims 53 and 54, Lin et al shows (Figs. 3 and 4) all the features described, *supra*, in addition to a positioner for moving a data transducer relative to a storage disk, wherein the magnetic arrays extend a first distance perpendicular to a longitudinal axis of a head stack assembly that includes the data transducer, the coil array extends a second distance perpendicular

Art Unit: 2653

to the longitudinal axis, and the first and second distances are essentially identical (the width of 21 is essentially identical to the width of 31a and 31b together).

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 13,20,23-30,35, and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Tohkairin (USPN 5,963,398) and on *res judicata*. The rejections are made on the prior art. However, based on prior adjudication and decision by the Board of Appeals, Paper filed on July 29, 2004, the rejection of the claims were sustained on the same issues.

13. Regarding Claim 13, Tohkairin shows (Figs. 2-10) a head stack assembly for moving a data transducer of a disk drive relative to a target track of a storage disk, the head stack assembly (Fig. 27) comprising an E-block (Fig. 9) having a longitudinal axis, a transducer assembly secured to the E-block, the transducer assembly including a data transducer (Fig. 3, (14-1)), a positioner including a magnet assembly (Figs. 12 and 13) producing a magnetic field, a coil array secured to the E-block and positioned near the magnet assembly, the coil array (Fig. 27, (90)) being a generally D-shaped loop consisting of a first segment and a second segment, the first segment is substantially linear, the first segment positioned substantially perpendicular to the longitudinal axis, the first segment (Fig. 14, (90-3)) including a first portion (Fig. 14, (90-1)), and a second portion (Fig. 14, (90-2)), and the second segment (Fig. 14, (90-4)) forms an arc, and

Art Unit: 2653

a control system (Fig. 4) that directs current to the coil array to move the data transducer relative to the target track.

14. Regarding Claim 20, drawn to a method of retrieving data from a target track on a rotating storage disk of a disk drive using the aforementioned apparatus, the limitations of the method claims are met and are anticipated by Tohkairin when the apparatus operates.

15. Regarding Claims 23-27, Tohkairin shows (Fig. 5) a positioner for moving a data transducer relative to a storage disk in a disk drive, the positioner comprising a magnetic assembly including an upper magnetic array and a lower magnetic array, and a coil array (Fig. 27, (90)) between the magnetic arrays, wherein the coil array is a generally-D-shaped loop that consists of a first segment and a second segment, the first segment is substantially linear and the second segment forms an arc, wherein the coil array (90) includes a first segment and second segment, the first segment is substantially linear and the second segment forms an arc (See Examiner's Drawing), the first segment is substantially perpendicular to a longitudinal axis of a head stack assembly (Fig. 1, (26)) that includes the data transducer (Fig. 3, (14-1)), the second segment forms an arc that is centered at a pivot center of the head stack assembly, and the first and second segments are positioned symmetrically about the longitudinal axis.

16. Regarding Claim 37, Tohkairin shows a disk drive (Fig. 3) with a head stack assembly (Fig. 27) including a positioner (20) for moving an E-block (Fig. 9) and a data transducer (Fig. 3, (14-1)) of a disk drive relative to a storage disk (Fig. 3), the E-block having a longitudinal axis, the positioner comprising a magnet assembly (Figs. 12 and 13), including an upper and lower magnetic array, producing a magnetic field and a coil array (Fig. 27, (90)) that couples to the E-block and is positioned near the magnet assembly, the coil array being generally a D-shaped

Art Unit: 2653

loop of wire wrapped into a plurality of turns including a first segment (Fig. 14, (90-3)) that is positioned substantially perpendicular to the longitudinal axis of the E-block, the first segment being adapted to interact with the magnetic field to move the E-block relative to the storage disk and is substantially linear, wherein the only portion of the coil array that interacts with the magnetic field of the magnet assembly when the coil array is electrically excited is positioned substantially perpendicular to the longitudinal axis of the E-block (Fig. 27).

17. Regarding Claims 28-30 and 38, Tohkairin shows (Fig. 1) the positioner wherein the first segment includes a first portion, a second portion and a center portion therebetween, the first and second portions are positioned between the magnetic arrays, and the center portion is not positioned between the magnetic arrays, wherein the magnetic arrays each include an inner side, an outer side, and a pair of side wings therebetween, the inner side faces towards the data transducer (14-1) and forms an arc, and the outer side faces away from the data transducer, wherein the inner side forms an arc that is centered at a pivot center for the data transducer.

18. Regarding Claims 35 and 39, Tohkairin shows (Fig. 1) the positioner wherein the magnetic arrays extend a first distance parallel to a longitudinal axis of the head stack assembly that includes the data transducer, the coil array extends a second distance parallel to the longitudinal axis, and the first distance is greater than the second distance.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 14-19,21,22,31,36,40, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tohkairin (USPN 5,963,398) in view of Lin et al (USPN 6,633,457).

21. Regarding Claims 14-19,21,22,31,36,40, and 49, Tohkairin shows all the features described, *supra*, but does not show interaction of the coil array with the magnetic array wherein the first force is substantially equal in magnitude to the second force and the first force is substantially opposite in direction to the second force, the inner and outer sides are curved with reverse concavity, and the magnetic arrays extend a first distance parallel to a longitudinal axis of the head stack assembly that includes the data transducer, the coil array extends a second distance parallel to the longitudinal axis, and the first distance and second distances are essentially identical.

Lin et al shows (Fig. 4) interaction of the coil array with the magnetic array wherein the first force (F1A) is substantially equal in magnitude to the second force and the first force is substantially opposite in direction to the second force (F2A), the inner and outer sides are curved with reverse concavity, and the magnetic arrays extend a first distance parallel to a longitudinal axis of the head stack assembly that includes the data transducer, the coil array extends a second distance parallel to the longitudinal axis, and the first distance and second distances are essentially identical.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the positioner of Tohkairin with the positioner of Lin et al. The rationale is as follows: One of ordinary skill in the art at the time the invention was made would have been motivated to provide the positioner of Tohkairin with the positioner of Lin et al in order to

generate generate substantially no reaction force on the pivot member, reducing the vibration mode thus maintaining high positioning accuracy.

Allowable Subject Matter

22. Claims 8,9, and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Blouin whose telephone number is (703) 305-5629. The examiner can normally be reached M-F, 6:00 am – 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, William Korzuch can be reached at (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314 for regular and After Final communications.

Any inquiry of general nature or relating to the status of application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



Mark Blouin
Patent Examiner
Art Unit 2653
November 9, 2004

A. J. HEINZ
PRIMARY EXAMINER
GROUP ~~250~~ A. U. 2653

